

WHAT IS CLAIMED IS:

1        1. A near end speech coding method for coding speech  
2 to be recognized (STBR) for completion of word-level  
3 recognition by a machine at a far end in relation to a  
4 dialogue between the near and far ends having an associated  
5 vocabulary size (V), said method comprising:

6                extracting recognition feature vectors (f) frame-  
7 wise from received speech to be recognized (STBR);

8                choosing a number of bits (B) per codebook index  
9 or an associated codebook size (Sz) corresponding to the  
10 dialogue or an associated vocabulary size (V) from among a  
11 plurality of choices;

12                selecting indic~~es~~ (q) from entries of a codebook  
13 having the associated size (Sz) corresponding to the  
14 extracted recognition feature vectors (f), and

15                forming signals for transmission to the far end,  
16 which signals are derived from a string of the selected  
17 indices (q-string).

1        2. The method as claimed in Claim 1, wherein the  
2 choice of number of bits (B) or associated codebook size  
3 (Sz) is done to substantially optimize a metric which is a  
4 function of a bit rate (BR) of the formed signals and an  
5 expected recognition rate (RR) taking into account the  
6 vocabulary size (V) associated with the dialogue.

1        3. The method as claimed in Claim 1, wherein the  
2 formed signals to be transmitted include an indication of  
3 the number of bits (B) per recognition vector or associated

4 codebook size (Sz).

1       4. The method as claimed in Claim 2, wherein the  
2 formed signals to be transmitted include an indication of  
3 the number of bits (B) per recognition vector or associated  
4 codebook size (Sz).

1       5. The method as claimed in Claim 1, wherein the  
2 formation of the signals includes time-wise compression of  
3 the string of the selected indices (q-string).

1       6. The method as claimed in Claim 2, wherein the  
2 formation of the signals includes time-wise compression of  
3 the string of the selected indices (q-string).

1       7. The method as claimed in Claim 1, wherein said  
2 method is carried out by a mobile communication device  
3 (MS).

1       8. The method as claimed in Claim 2, wherein said  
2 method is carried out by a mobile communication device  
3 (MS).

1       9. A communication device for receiving near end  
2 speech to be recognized (STBR) and for communicating with a  
3 machine at a far end for completing word-level recognition  
4 in relation to a dialogue between the near and far ends  
5 having an associated vocabulary size (V), said device  
6 comprising:

7               a feature vector extractor for extracting

8 recognition feature vectors (f) framewise from received  
9 speech to be recognized (STBR);  
10 a decision block for choosing a number of bits  
11 (B) per codebook index or an associated codebook size (Sz)  
12 corresponding to the dialogue or an associated vocabulary  
13 size (V) from among a plurality of choices;  
14 a coder for selecting indicies (q) from entries  
15 of a codebook having the associated size (Sz) corresponding  
16 to the extracted recognition feature vectors (f), and  
17 a signal former for forming signals in accordance  
18 with a protocol for transmission to the far end, which  
19 signals are derived from a string of the selected indices  
20 (q-string).

1 10. The device as claimed in Claim 8, wherein the  
2 choice of number of bits (B) or associated codebook size  
3 (Sz) is done to substantially optimize a metric which is a  
4 function of a bit rate (BR) of the formed signals and an  
5 expected recognition rate (RR) taking into account the  
6 vocabulary size (V) associated with the dialogue.

1 11. The device as claimed in Claims 9, wherein the  
2 formed signals to be transmitted include an indication of  
3 the number of bits (B) per recognition vector or associated  
4 codebook size (Sz).

1 12. The device as claimed in Claims 10, wherein the  
2 formed signals to be transmitted include an indication of  
3 the number of bits (B) per recognition vector or associated  
4 codebook size (Sz).

1       13. The device as claimed in Claim 9, wherein the  
2 formation of the signals includes time-wise compression of  
3 the string of the selected indices (q-string).

1       14. The device as claimed in Claim 10, wherein the  
2 formation of the signals includes time-wise compression of  
3 the string of the selected indices (q-string).

1       15. A speech recognition method comprising:  
2            receiving signals which are derived from a string  
3 of the indices (q-string) selected from entries in a  
4 codebook corresponding to recognition feature vectors (f)  
5 extracted framewise from speech to be recognized (STBR),  
6 which signals include an indication of the number of bits  
7 (B) per codebook index or associated codebook size (Sz);  
8            obtaining the string of indices (q-string) from  
9 the received signals;  
10          obtaining the corresponding recognition feature  
11 vectors (f) from the string of indices (q-string) using a  
12 codebook having the associated size (Sz); and  
13          applying the recognition feature vectors (f) to a  
14 word-level recognition process (HMM).

1       16. The method as claimed in Claim 15, further  
2 comprising taking an action in dependence on a result of  
3 the recognition process.

1       17. An electromagnetic signal in which is encoded  
2 first data derived from a string of indicies (q)  
3 corresponding to entries from a codebook, which entries

4 correspond to recognition feature vectors ( $f$ ) extracted  
5 from speech, and second data indicating a number of bits  
6 (B) per recognition feature vector ( $f$ ) or an associated  
7 codebook size ( $S_z$ ).